Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for synthesizing a nucleic acid probe array, comprising the steps of:

(1) providing a substrate;

(2) providing nucleotides or nucleosides that are protected by a photo-protecting group;

(3) directing a light beam onto a plurality of optical ~~transfer~~ fiber elements, wherein each optical fiber element operatively couples to an interface that aligns an end of the optical fiber element with an area for synthesizing a probe feature on the substrate;

(4) selectively switching one or more of the optical ~~transfer~~ fiber elements between substantially light-passing and substantially light-not-passing states in response to gating data, resulting in a first set of one or more optical fiber elements in the substantially light passing state;

(5) disposing light passed through the first set of optical ~~transfer~~ fiber elements ~~in the substantially light passing state~~ onto ~~the substrate~~ each corresponding aligned area to provide a reactive group; and

(6) contacting the nucleotides or nucleosides with the reactive group.

2. (Currently Amended) The method of claim 1, wherein:

light passed through at least one optical ~~transfer~~ fiber element in the substantially light-passing state strikes ~~a first set of selected portions~~ each corresponding aligned area of the substrate, thereby activating ~~the first set of selected portions~~ each aligned area.

3. (Original) The method of claim 1, wherein:

the light beam includes ultra-violet light.

4. (Currently Amended) The method of claim 1, wherein:

the plurality of optical ~~transfer~~ fiber elements ~~include an optical fiber~~ each comprise one or more optical fibers or one or more segments of optical fibers.

5. (Currently Amended) A method for ~~synthesizing one or more arrays of biological probes~~ aligning one or more optical fiber elements with an area for synthesizing a probe feature on each of one or more substrates, comprising the steps of:

(1) directing a light beam onto one or more optical ~~transfer~~ fiber elements, wherein each optical ~~transfer~~ fiber element operatively couples to an interface that aligns an end of the optical fiber element with an area for synthesizing a probe feature on each of the one or more substrates;

(2) selectively switching one or more of the optical ~~transfer~~ fiber elements between substantially light-passing and substantially light-not-passing states in response to gating data, resulting in a first set of one or more optical fiber elements in the substantially light passing state; and

(3) disposing light passed through the first set of optical ~~transfer~~ fiber elements ~~in the substantially light-passing state~~ onto ~~the one or more substrates~~ each corresponding aligned area.

6. (Currently Amended) The method of claim 5, further comprising the step of:

(4) activating each ~~selected portions~~ aligned area of the substrate responsive to step (3).

7. (Currently Amended) The method of claim 6, wherein:

light passed through ~~at least one~~ each optical ~~transfer~~ fiber element in the ~~substantially light-passing state~~ first set strikes ~~a first set of selected portions~~ each corresponding aligned area of the substrate, thereby activating ~~the first set of selected portions~~ each aligned area.

8. (Currently Amended) The method of claim 7, further comprising the step of:

(5) providing linker molecules on the substrate, wherein the linker molecules include a reactive functional group protected with a photo-removable protective group; and wherein step (4) includes exposing the photo-removable protective groups to light in ~~the first set of selected portions~~ each aligned area of the substrate, thereby removing the photo-removable protective groups from the linker molecules and exposing the reactive functional groups in ~~the first set of selected portions~~ each aligned area.

9. (Original) The method of claim 8, further comprising the step of:

(6) contacting the exposed reactive functional groups with first monomers capable of reacting with the exposed reactive functional groups.

10. (Original) The method of claim 9, wherein:

the first monomers include a nucleotide, nucleoside, amino acid, or saccharide.

11. (Original) The method of claim 9, wherein:

the first monomers include a reactive functional group protected with a photo-removable protective group.

12. (Currently Amended) The method of claim 11, ~~wherein~~ further comprising the steps of:

(7) selectively switching one or more of the optical fiber elements between substantially light-passing and substantially light-not-passing states in response to the gating data, resulting in a second set of one or more optical fiber elements in the substantially light passing state, wherein light passed through ~~at least one~~ each optical transfer element in the ~~substantially light-passing state~~ second set strikes ~~a second set of selected portions~~ each corresponding aligned area of the substrate, which may be the same as or different than the ~~first set of selected portions~~ one or more aligned areas corresponding to the first set, thereby activating the second set of ~~selected portions~~ aligned areas; and ~~wherein the method further includes the step of~~

([[7]]8) contacting exposed reactive functional groups of the linker molecules or of the first monomers with a second monomer, which may be the same or different than

the first monomer, capable of reacting with exposed reactive functional groups of the linker molecules or of the first monomer and having a reactive functional group protected with a photo-removable protective group.

13. (Currently Amended) The method of claim 5, further comprising the step of:

(4) deactivating ~~selected portions~~ the aligned areas of the substrate corresponding to the first set responsive to step (3).

14. (Currently Amended) The method of claim 13, wherein:

light passed through ~~at least one~~ each optical transfer element in the ~~substantially light passing state~~ first set strikes ~~a portion~~ each corresponding aligned area of the substrate, thereby deactivating ~~the selected portion~~ each aligned area.

15-52 (Cancelled)

53. (Currently Amended) One or more arrays of biological probes disposed on one or more substrates, wherein the arrays are synthesized by a method comprising the steps of:

(1) directing a light beam to a plurality of optical ~~transfer~~ fiber elements, wherein each optical fiber element operatively couples to an interface that aligns an end of the optical fiber element with an area for synthesizing a probe feature on each of the one or more substrates;

(2) selectively switching one or more of the optical ~~transfer~~ fiber elements between substantially light-passing and substantially light-not-passing states in response

to gating data, resulting in a first set of one or more optical fiber elements in the substantially light passing state; ~~and~~

(3) disposing light passed through the first set of optical ~~transfer~~ fiber elements ~~in the substantially light passing state~~ onto ~~the one or more substrates~~ each corresponding aligned area, thereby activating each aligned area[[ ]]; and

(4) coupling monomers onto each aligned area

54. (Original) The arrays of claim 53, wherein the method further comprises the steps of:

(4) processing customer orders for synthesized probe arrays to provide probe and array configuration data indicative of at least one probe array sequence;

(5) processing the probe and array configuration data to provide probe array design data; and

(6) processing the probe array design data to provide the gating data.

55. (New) The method of claim 5, wherein:

the interface comprises a plurality of wells, wherein each well comprises tapered walls to operatively couple with one or more of the optical fiber elements.

56. (New) The method of claim 55, wherein:

each of the one or more optical fiber elements comprise tapered ends, wherein the tapered ends are complementary to the tapered walls of the wells.